

Enterobacteriaceae bacteremia after liver transplantation

doi:10.1111/j.1432-2277.2008.00772.x

Immunosuppressed recipients are at particular risk for acquiring infection which negatively impacts both, clinical and economic outcomes [1–4]. We read with interest the excellent study report by Bellier *et al.* [5], that professionally evaluates risk factors for *Enterobacteriaceae* bacteremia (EB) following orthotopic liver transplantation (OLT). As data on this topic are sparse, this study adds substantial information to the literature. Although we understand that the accent of the study was on the identification of specific risk factors for the acquisition of EB, some questions arose particularly regarding the outcome of the patients. Crude mortality associated with EB in the cohort described by Bellier *et al.* was 35%. This grim figure, however, does not necessarily reflect the adverse impact of EB and must be interpreted in the light of general severity of disease and acute illness: as the cohort described by Bellier *et al.* was clearly sick and vulnerable, the baseline risk for mortality was most probably also already very high. As such, despite a high associated mortality, attributable mortality rates can be surprisingly low as has been demonstrated in general cohorts of critically ill patients who developed EB once accurate adjustment of disease severity was achieved [6–8]. We would appreciate if Bellier *et al.* could examine the clinical impact of EB within the total cohort of OLT patients taking into account adjustment for disease severity, e.g. age and MELD score.

Another factor that influences the impact of EB is the antimicrobial therapy. Achieving appropriate empiric therapy (or at least within a 48h time frame) is crucial to optimize the odds of survival in severe infection [9–12]. The authors report that all patients received appropriate antibiotic therapy; however, time frame in which appropriateness of therapy was achieved was not specified in the article. In this regard, we are also interested in the strategy used to select empiric antibiotic therapy. Did physicians use a strict empirical antibiotic scheme or did a surveillance culture assist in the strategy used [13–15]?

Funding source

D. Vandijck holds a Doctoral Grant from the Specific Research Fund of the Ghent University.

Dominique Vandijck,¹ Eric Hoste,¹
Dirk Vogelaers^{1,2} and Stijn Blot^{1,2}

¹ Faculty of Medicine and Health Sciences,
Ghent University, Ghent, Belgium

² General Internal Medicine and Infectious Diseases,
Ghent University Hospital, Ghent, Belgium

References

1. Vandijck DM, Depaemelaere M, Labeau SO, *et al.* Daily cost of antimicrobial therapy in patients with Intensive Care Unit-acquired, laboratory-confirmed bloodstream infection. *Int J Antimicrob Agents* 2008; **31**: 161.
2. Vandecasteele E, De Waele J, Blot S, *et al.* Antimicrobial prophylaxis in liver transplant patients – a multicenter survey supported by elita. *Transpl Int* 2008; **21**: 13.
3. Vandijck D, Decruyenaere JM, Blot SI. The value of sepsis definitions in daily ICU-practice. *Acta Clin Belg* 2006; **61**: 220.
4. Schwaber MJ, Navon-Venezia S, Kaye KS, Ben-Ami R, Schwartz D, Carmeli Y. Clinical and economic impact of bacteremia with extended-spectrum-beta-lactamase-producing *Enterobacteriaceae*. *Antimicrob Agents Chemother* 2006; **50**: 1257.
5. Bellier C, Bert F, Durand F, *et al.* Risk factors for *Enterobacteriaceae* bacteremia after liver transplantation. *Transpl Int* 2008; **21**: 755.
6. Blot S, Vandewoude K, Hoste E, *et al.* Absence of excess mortality in critically ill patients with nosocomial *Escherichia coli* bacteremia. *Infect Control Hosp Epidemiol* 2003; **24**: 912.
7. Blot SI, Vandewoude KH, Colardyn FA. Clinical impact of nosocomial *Klebsiella* bacteremia in critically ill patients. *Eur J Clin Microbiol Infect Dis* 2002; **21**: 471.
8. Blot SI, Vandewoude KH, Colardyn FA. Evaluation of outcome in critically ill patients with nosocomial enterobacter bacteremia: results of a matched cohort study. *Chest* 2003; **123**: 1208.
9. Hoste EA, Vandijck DM, Van Holder RC, *et al.* Health implications of antimicrobial-resistance in bloodstream infection patients with acute kidney injury. *Infect Control Hosp Epidemiol* 2007; **28**: 1107.
10. Blot S. Limiting the attributable mortality of nosocomial infection and multidrug resistance in intensive care units. *Clin Microbiol Infect* 2008; **14**: 5.

11. Schwaber MJ, Carmeli Y. Mortality and delay in effective therapy associated with extended-spectrum beta-lactamase production in Enterobacteriaceae bacteraemia: a systematic review and meta-analysis. *J Antimicrob Chemother* 2007; **60**: 913.
12. Tumbarello M, Sanguinetti M, Montuori E, *et al.* Predictors of mortality in patients with bloodstream infections caused by extended-spectrum-beta-lactamase-producing Enterobacteriaceae: importance of inadequate initial antimicrobial treatment. *Antimicrob Agents Chemother* 2007; **51**: 1987.
13. Blot S, Depuydt P, Vogelaers D, *et al.* Colonization status and appropriate antibiotic therapy for nosocomial bacteraemia caused by antibiotic-resistant gram-negative bacteria in an intensive care unit. *Infect Control Hosp Epidemiol* 2005; **26**: 575.
14. Depuydt P, Benoit D, Vogelaers D, *et al.* Outcome in bacteremia associated with nosocomial pneumonia and the impact of pathogen prediction by tracheal surveillance cultures. *Intensive Care Med* 2006; **32**: 1773.
15. Depuydt P, Benoit D, Vogelaers D, *et al.* Systematic surveillance cultures as a tool to predict involvement of multi-drug antibiotic resistant bacteria in ventilator-associated pneumonia. *Intensive Care Med* 2008; **34**: 675.